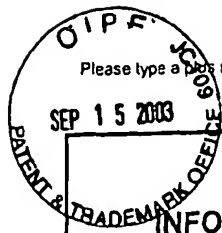


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Substitute for form 1449A/PTO			Application Number	10/040,948	
<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  (use as many sheets as necessary)			Filing Date	1/5/02	
			First Named Inventor	Steven Teig	
			Group Art Unit		
			Examiner Name		
Sheet	1	of	1	Attorney Docket Number	SPLX.P0025

RELATED U.S. PATENT DOCUMENTS					
Examiner Initials	Cite No.	U.S. Patent Document Number	Date of filing MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Related Application Data
<i>[Signature]</i>	1.	2003/0079193	12-07-2001	Steven Teig et al.	Parent application; present application is a continuation of 2003/079193.
<i>[Signature]</i>	2.	2003/0018947	12-07-2001	Steven Teig et al.	Application filed on the same day as the parent application 2003/0079193, with the same specification as the present application except for summary and abstract.
<i>[Signature]</i>	3.	2002/0147958	10-19-2001	Steven Teig et al.	Parent application per the preliminary amendment dated 2/19/03.
<i>[Signature]</i>	4.	2003/0063614	01-04-2002	Steven Teig et al.	Application with some of the same parent provisional applications and with the same specification as the present application except for summary and abstract.
<i>[Signature]</i>	5.	2003/0064559	01-04-2002	Steven Teig et al.	Application with some of the same parent provisional applications and with the same specification as the present application except for summary and abstract.
<i>[Signature]</i>	6.	2003/0063568	01-04-2002	Steven Teig et al.	Application with some of the same parent provisional applications and with the same specification as the present application except for summary and abstract.
<i>[Signature]</i>	7.	2003/0101428	01-05-2002	Steven Teig et al.	Continuation of 2003/0079193.
<i>[Signature]</i>	8.	2003/0043827	01-05-2002	Steven Teig et al.	Continuation of 2003/0079193.
<i>[Signature]</i>	9.	2003/0023943	01-05-2002	Steven Teig et al.	Continuation of 2003/0079193.
<i>[Signature]</i>	10.	2003/0066042	01-05-2002	Steven Teig et al.	Continuation of 2003/0079193.
<i>[Signature]</i>	11.	2002/0174412	01-07-2002	Steven Teig et al.	Continuation of 2003/0079193.
<i>[Signature]</i>	12.	2003/0088844	01-07-2002	Steven Teig et al.	Continuation of 2003/0079193.
<i>[Signature]</i>	13.	2002/0199165	01-13-2002	Steven Teig et al.	Continuation of 2003/0079193.
<i>[Signature]</i>	14.	2003/0066043	01-13-2002	Steven Teig et al.	Continuation of 2003/0088844 per preliminary amendment.
<i>[Signature]</i>	15.	2003/0115566	01-13-2002	Steven Teig	Continuation of 2003/0088844 per preliminary amendment.
<i>[Signature]</i>	16.	2003/0056187	01-14-2002	Steven Teig et al.	Another continuation of 2003/0079193.

Examiner Signature	<i>[Signature]</i>	Date Considered	2/12/04
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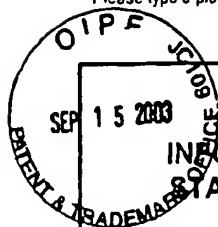
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<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  (use as many sheets as necessary)			Filing Date	1/5/02	
			First Named Inventor	Steven Teig	
			Group Art Unit		
			Examiner Name		
Sheet	2	of	2	Attorney Docket Number	SPLX.P0025

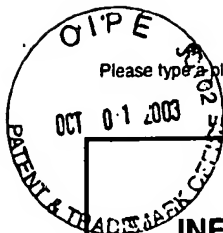
RELATED U.S. PATENT DOCUMENTS						
	17.	2003/0066044		01-13-2002	Steven Teig et al.	Application with some of the same parent provisional applications and with the same specification as the present application except for summary and abstract.
	18.	2003/0066045		01-13-2002	Steven Teig et al.	Application with some of the same parent provisional applications and with the same specification as the present application except for summary and abstract.
	19.	2002/0133798		12-06-2000	Steven Teig et al.	Application regarding related placement technology
	20.	2002/0100007		12-06-2000	Steven Teig et al.	Application regarding related placement technology
	21.	2002/0073390		12-13-2000	Steven Teig et al.	Application regarding related placement technology
	22.	S/N 09/737,220		12-13-2000	Steven Teig et al.	Application regarding related placement technology
	23.	S/N 09/737,245		12-13-2000	Steven Teig et al.	Application regarding related placement technology
	24.	S/N 09/739,460		12-15-2000	Steven Teig et al.	Application regarding related placement technology
	25.	2002/0124231		12-15-2000	Steven Teig et al.	Application regarding related placement technology
	26.	S/N 09/739,589		12-15-2000	Steven Teig et al.	Application regarding related placement technology
	27.	S/N 09/742,171		12-19-2000	Steven Teig et al.	Application regarding related placement technology
	28.	2003/0121015		12-19-2000	Steven Teig et al.	Application regarding related placement technology
	29.	2002/0069397		01-13-2002	Steven Teig et al.	Application regarding related placement technology
	30.	2002/0170027		02-20-2002	Steven Teig et al.	Application regarding related placement technology
	31.	2002/0157075		02-20-2002	Steven Teig et al.	Application regarding related placement technology
	32.	2003/0088841		12-23-2002	Steven Teig et al.	Application regarding related placement technology

Examiner Signature		Date Considered	2/12/04
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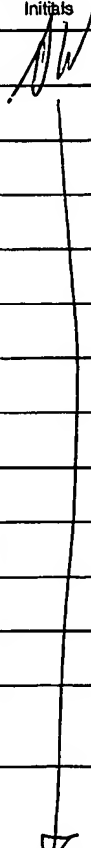
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<b>Substitute for form 1449A/PTO</b>  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  (use as many sheets as necessary)				Applicati n Numb r	10/040,948
				Filing Date	1/5/02
				First Named Inventor	Steven Teig
				Group Art Unit	2812
				Examiner Name	Stacy A. Whitmore
Sheet	1	of	1	Attorney Docket Number	SPLX.P0025

U.S. PATENT DOCUMENTS						
Examiner Initials	Cite No. <sup>1</sup>	U.S. Patent Document		Date of Publication MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Related Application Data
		Number				
	1.	2003/0101428 S/N 10/040,915		01-05-2002	Steven Teig et al.	Previously specified
	2.	2003/0043827 S/N 10/040,953		01-05-2002	Steven Teig et al.	Previously specified
	3.	2003/0023943 S/N 10/040,954		01-05-2002	Steven Teig et al.	Previously specified
	4.	2003/0066042 S/N 10/040,963		01-05-2002	Steven Teig et al.	Previously specified
	5.	2002/0174412 S/N 10/041,942		01-07-2002	Steven Teig et al.	Previously specified
	6.	2003/0088844 S/N 10/041,957		01-07-2002	Steven Teig et al.	Previously specified
	7.	2002/0199165 S/N 10/046,864		01-13-2002	Steven Teig et al.	Previously specified
	8.	2003/0056187 S/N 10/047,982		01-14-2002	Steven Teig et al.	Previously specified
	9.	2002/0073390 S/N 09/737,210		12-13-2000	Steven Teig et al.	Previously specified
	10.	2002/0124231 S/N 09/739,580		12-15-2000	Steven Teig et al.	Previously specified
	11.	2003/0121015 S/N 09/745,067		12-19-2000	Steven Teig et al.	Previously specified
	12.	2003/0088841 S/N 10/329,241		12-23-2002	Steven Teig et al.	Previously specified
	13.	2003/0088845 S/N 10/047,978		01-13-2002	Steven Teig et al.	Continuation of the parent application (2003/0079193) of the present application.
	14.	Preliminary Amendment for S/N 10/047,978		01-13-2002	Steven Teig et al.	This Preliminary Amendment is submitted as the publication 2003/0088845 does not accurately reflect the claims of S/N 10/047,978.

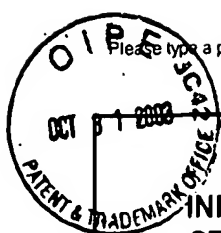
Examiner Signature	[Signature]	Date Considered	2/12/04
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Substitute for form 1449A/PTO  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  <i>(use as many sheets as necessary)</i>				Application Number	10/040,948
				Filing Date	1/5/02
				First Named Inventor	Steven Teig
				Group Art Unit	2812
				Examiner Name	Stacy A. Whitmore
				Attorney Docket Number	SPLX.P0025
Sheet	1	of	1		

NON PATENT LITERATURE DOCUMENTS				
Examiner* Initials	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.		T <sup>6</sup>
	1.	Kastner R et al.: "Predictable Routing" IEEE/ACM International Conference on Computer Aided Design. ICCAD – 2000. IEEE/ACM Digest of Technical Papers (CAT. NO.00CH37140), Proceedings of International Conference on Computer Aided Design (ICCAD), San Jose, CA, USA, 5-9 Nov. 2000. Pages 110-113.		
	2.	Jiang Hu et al.: "A Timing-Constrained algorithm for Simultaneous Global Routing of Multiple Nets" IEEE/ACM International Conference on Computer Aided Design. ICCAD – 2000. IEEE/ACM Digest of Technical Papers (CAT. NO.00CH37140), Proceedings of International Conference on Computer Aided Design (ICCAD), San Jose, CA USA, 5-9 Nov. 2000. Pages 99-103.		

Examiner Signature		Date Considered	
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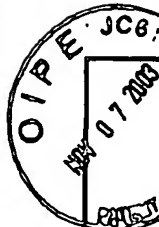
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Substitute for form 1449A/PTO				Application Number	10/040,948
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				First Named Inventor	Steven Teig
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				Examiner Name	Stacy A. Whitmore
Sheet	1	of	6	Attorney Docket Number	SPLX.P0025

### U.S. PATENT DOCUMENTS

Examiner's Initials	Cite No. <sup>1</sup>	U.S. Patent Document Number	Kind Code <sup>2</sup> (if known)	Date of Publication MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
	1.	2001/0009031	A1	07-19-2001	Nitta et al.	
	2.	4,593,363		06-03-1986	Burstein et al.	
	3.	5,267,176		11-30-1993	Antreich et al.	
	4.	5,566,078		10-15-1996	Ding et al.	
	5.	5,587,923		12-24-1996	Wang	
	6.	5,618,744		04-08-1997	Suzuki et al.	
	7.	5,635,736		06-03-1997	Funaki et al.	
	8.	5,637,920		06-10-1997	Loo	
	9.	5,640,327		06-17-1997	Ting	
	10.	5,784,289		07-28-1998	Wang	
	11.	5,798,936		08-25-1998	Cheng	
	12.	5,838,583		11-1998	Varadarajan et al.	
	13.	5,980,093		11-09-1999	Jones et al.	
	14.	6,070,108		05-30-2000	Andreev et al.	
	15.	6,150,193		11-21-2000	Glenn	
	16.	6,209,123	B1	03-27-2001	Maziasz et al.	
	17.	6,219,832	B1	04-17-2001	Buzbee	
	18.	6,249,902	B1	06-19-2001	Igusa et al.	
	19.	6,253,363	B1	06-26-2001	Gasanov et al.	
	20.	6,295,634	B1	09-25-2001	Matsumoto	
	21.	6,307,256		10-23-2001	Chiang et al.	

Examiner Signature		Date Considered	2/12/04
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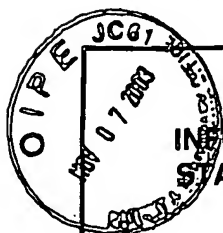
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

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				Group Art Unit	2812
				Examiner Name	Stacy A. Whitmore
Sheet	2	of	6	Attorney Docket Number	SPLX.P0025

U.S. PATENT DOCUMENTS					
1	22.	6,316,838	B1	11-13-2001	Ozawa et al.
	23.	6,324,674	B2	11-27-2001	Andreev et al.
	24.	6,324,675	B1	11-27-2001	Dutta et al.
	25.	6,327,693	B1	12-04-2001	Cheng et al.
	26.	6,330,707		12-11-2001	Shinomiya et al.
	27.	6,407,434	B1	06-18-2002	Rostoker et al.
	28.	6,415,422	B1	07-02-2002	Mehrotra et al.
	29.	6,442,743	B1	08-27-2002	Sarrafzadeh et al.
	30.	6,448,591	B1	09-10-2002	Juengling
	31.	6,473,891	B1	10-29-2002	Shively
	32.	6,480,991	B1	11-12-2002	Cho et al.
	33.	6,490,713	B2	12-03-2002	Matsumoto
	34.	6,546,540	B1	04-08-2003	Igarashi et al.
	35.	6,557,145	B2	04-29-2003	Boyle et al.
	36.	6,567,967	B2	05-20-2003	Greidinger et al.

FOREIGN PATENT DOCUMENTS								
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		Office <sup>3</sup>	Number <sup>4</sup>	Kind Code (if known)				
	37.	JP	411296560	A	Matsumoto et al.	10-29-1999	with English translation of Abstract;	
	38.	JP	2000-82743	A	Igarashi et al.	03-21-2000	with Japanese Patent Office's English translation of Abstract; and with English	√

Examiner Signature		Date Considered	2/12/04
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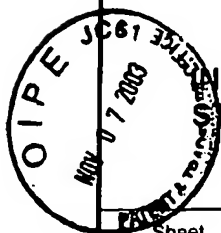
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<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  <i>(use as many sheets as necessary)</i>				Filing Dat	1/5/02
				First Named Inv <sup>nt</sup> r	Steven Teig
				Group Art Unit	2812
				Examiner Name	Stacy A. Whitmore
Sheet	3	of	6	Attorney Docket Number	SPLX.P0025

FOREIGN PATENT DOCUMENTS							
							translation of the application.
39.	JP	H03-173471	A	Tawada et al.	07-26-1991		with Japanese Patent Office's English translation of Abstract; and with English translation of the application. ✓
40.	JP	H05-243379	A	Masako Kubota	09-21-1993		with Japanese Patent Office's English translation of Abstract; and with English translation of the application. ✓
41.	JP	H05-102305	A	Akihiro Sato	04-23-1993		with Japanese Patent Office's English translation of Abstract; and with English translation of the application. ✓
42.	JP	H07-86407	A	Shinpei Miura	03-31-1995		with Japanese Patent Office's English translation of Abstract; and with English translation of the application. ✓
43.	JP	H09-162279	A	Masaaki Yoshida	06-20-1997		with Japanese Patent Office's English translation of Abstract; and with English translation of the application. ✓

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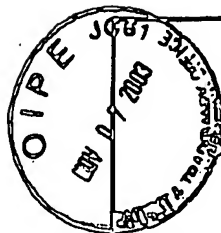
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Sheet

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of

6

Application Number

10/040,948

**Filing Date**

1/5/02

First Named Inventor

## Steven Teig

### Group Art Unit

2812

Examiner Name

Stacy A. Whitmore

Attorney Docket Number

**SPLX.P0025**

## FOREIGN PATENT DOCUMENTS

## NON PATENT LITERATURE DOCUMENTS

Examiner's Initials	Cite No.	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>6</sup>
JW	44.	Ahuja, R. et al., Faster Algorithms for the Shortest Path Problem, Journal of the Association for Computing Machinery, vol. 37, No. 2, April 1990, pp. 213-223.	
	45.	Brady, L. et al., Channel Routing on a 60° Grid, extended abstract, pp. 956-931.	
	46.	Brambilla, A. et al., Statistical Method for the Analysis of Interconnects Delay in Submicrometer Layouts, IEEE, 8/2001, pp. 957-966.	
	47.	Carothers, K., A Method of Measuring Nets Routability for MCM's General Area Routing Problems, 1999, pp. 186-192.	
	48.	Chen, H. et al., Physical Planning of On-Chip Interconnect Architectures, 2002, IEEE, International Conference, pp. 30-35.	
	49.	Cheng, K. et al., Manhattan or Non Manhattan? A Study of Alternative VLSI Routing Architectures, pp 47-52, 2000.	
	50.	Cheng, K., Steiner Problem in Octilinear Routing Model, a Thesis Submitted for the Degree of Master of Science, National University Singapore, 1995, pp. 1-122.	
	51.	Chip Model with Wiring Cost Map, August 1983, IBM Technical Disclosure Bulletin, vol. 26, iss. 3A, pp. 929-933.	
	52.	Cong, J. et al., Efficient Heuristics for the Minimum Shortest Path Steiner Arborance Problem with Applications to VLSI Physical Design, Cadence Design Systems and UCLA Computer Science Department, pp.88-95.	
	53.	Cong, J. et al., Performance-Driven Multi-Layer General Routing for PCB/MCM Designs, UCLA Computer Science Department, 1998, pp. 356-361.	
JW	54.	Enbody, R. et al., Near-Optimal $n$ -Layer Channel Routing, 23 <sup>rd</sup> Design Automation Conference, 1986, pp. 708-714.	
	55.	Fang, S. et al., Constrained Via Minimization with Practical Considerations for Multi-Layer VLSI/PCB Routing Problems, 28 <sup>th</sup> ACM/IEEE Design Automation Conference, 1991, pp. 60-65.	
	56.	Hom, I. et al., Estimation of the Number of Routing Layers and Total Wirelength in a PCB Through Wiring Distribution Analysis, 1996, pp. 1-6.	

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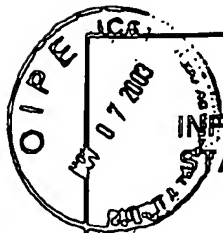
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Substitute for form 1449A/PTO				Application Number	10/040,948
<b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  (use as many sheets as necessary)				Filing Date	1/5/02
				First Named Inventor	Steven Teig
				Group Art Unit	2812
				Examiner Name	Stacy A. Whitmore
Sheet	5	of	6	Attorney Docket Number	SPLX.P0025

FOREIGN PATENT DOCUMENTS		
57.	Hong, X. et al., Performance-Driven Steiner Tree Algorithms for Global Routing, 30 <sup>th</sup> ACM/IEEE Design Automation Conference, 1993, pp. 177-181.	
58.	Khoo, K. et al., An Efficient Multilayer MCM Router Based on Four-Via Routing, 30 <sup>th</sup> ACM/IEEE Design Automation Conference, 1993, pp. 590-595.	
59.	Lillis, J. et al., Table-Lookup Methods for Improved Performance-Driven Routing, 1998, pp. 368-373.	
60.	Lipski, W. et al., A Unified Approach to Layout Wirability, Mathematical Systems Theory, 1987, pp. 189-203.	
61.	Lodi, E. et al., A Preliminary Study of a Diagonal Channel-Routing Model, Algorithmica, 1989, pp.585-597.	
62.	Lodi, E. et al., Lecture Notes in Computer Science, A 4d Channel Router for a Two Layer Diagonal Model, pp. 464-476, July 1988.	
63.	Naclerio, N. et al., Via Minimization for Gridless Layouts, 24 <sup>th</sup> ACM/IEEE Design Automation Conference, 1987, pp. 159-165.	
64.	Nam, G. et al, Satisfiability-Based Layout Revisited: Detailed Routing of Complex FPGAs Via Search-Based Boolean SAT, 1999, pp. 167-175..	
65.	Oh, J. et al., Constructing Lower and Upper Bounded Delay Routing Trees Using Linear Programming, 33 <sup>rd</sup> Design Automation Conference, 1996.	
66.	Partitioning Logic on to Graph Structure, IBM Technical Disclosure Bulletin, February 1990, vol. 32, iss. 9A, pp. 469-475.	
67.	Phillips, N., Channel Routing by Constraint Logic, Department of Computer Science Southern Illinois University, ACM, 1992.	
68.	Takashima, Y. et al, Routability of FPGAs with Extremal Switch-Block Structures, IEICE Trans. Fundamentals, vol. E81-A, No. 5, May 1998, pp. 850-856.	
69.	Thakur, S. et al., Algorithms for a Switch Module Routing Problem, 1994, pp. 265-270.	
70.	Tseng, H., Timing and Crosstalk Driven Area Routing, pp. 378-381.	

Examiner Signature	<i>Stacy A. Whitmore</i>	Date Considered	2/12/04
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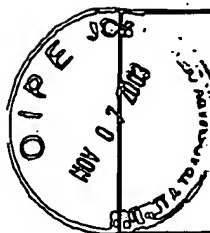
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				Examiner Name	Stacy A. Whitmore
Sheet	6	of	6	Attorney Docket Number	SPLX.P0025

FOREIGN PATENT DOCUMENTS		
71.		Wang, D., Novel Routing Schemes for IC Layout, Part I: Two-Layer Channel Routing, 28 <sup>th</sup> ACM/IEEE Automation Conference, 1991, pp. 49-53.
72.		Wang, M. et al., Modeling and Minimization of Routing Congestion, Jan. 2000, IEEE proceedings of ASP-DAC, Asia and South Pacific, pp. 185-190.
73.		Wood, G. et al., FPGA Routing and Routability Estimation Via Boolean Satisfiability, Department of Electrical and Computer Engineering Carnegie Mellon University, Pittsburgh, PA, pp. 119-125.
74.		Zhang, C.X. et al., Floorplan Design Using a Hierarchical Neural Learning Algorithm, IEEE, 6/1991. pp. 2060-2063.
75.		Zhou, H. et al., An Optimal Algorithm for River Routing with Crosstalk Constraints, 1996.
76.		Zhou, H. et al., Global Routing with Crosstalk Constraints, Department of Computer Sciences, University of Texas, 1998, pp. 374-377.
77.		Zhou, H. et al., Optimal River Routing with Crosstalk Constraints, ACM Transactions on Design Automation of Electronic Systems, vol. 3, No. 3, July 1998, pp. 496-514.

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Sheet	1	of	1	Attorney Docket Number	SPLX.P0025

### U.S. PATENT DOCUMENTS

Examiner* Initials	Cite No. <sup>1</sup>	U.S. Patent Document Number	Kind Code <sup>2</sup> (if known)	Date of Publication MM-DD-YYYY	Name of Patentee or Applicant of Cited Document	Pages, Columns, Lines, Where Relevant Passages or Relevant Figures Appear
<i>[Signature]</i>	1.	2002/0182844	A1	12-05-2002	Igarashi et al.	
<i>[Signature]</i>	2.	2003/0053399	A1	01-02-2003	Igarashi et al.	
<i>[Signature]</i>	3.	5,663,891		09-02-1997	Bamji et al.	
<i>[Signature]</i>	4.	5,757,089		05-26-1998	Ishizuka	
<i>[Signature]</i>	5.	5,889,677		03-30-1999	Yasuda et al.	
<i>[Signature]</i>	6.	6,128,767		10-03-2000	Chapman	
<i>[Signature]</i>	7.	6,226,560	B1	05-01-2001	Hama et al.	
<i>[Signature]</i>	8.	6,519,751	B2	02-11-2003	Sriram et al.	
<i>[Signature]</i>	9.	6,543,043	B1	04-01-2003	Wang et al.	

### NON PATENT LITERATURE DOCUMENTS

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<i>[Signature]</i>	10.	Hu, J. et al., A Timing-Constrained Algorithm for Simultaneous Global Routing of Multiple Nets, IEEE/ACM International Conference on Computer Aided Design. ICCAD – 2000. IEEE/ACM Digest of Technical Papers (CAT. NO.00CH37140), Proceedings of International Conference on Computer Aided Design (ICCAD), San Jose, CA, USA, 5-9 Nov. 2000, pp.99-103.	
<i>[Signature]</i>	11.	Kastner, R. et al, Predictable Routing, IEEE/ACM International Conference on Computer Aided Design. ICCAD – 2000. IEEE/ACM Digest of Technical Papers (CAT. NO.00CH37140), Proceedings of International Conference on Computer Aided Design (ICCAD), San Jose, CA, USA, 5-9 Nov. 2000. pp. 110-113.	

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